# The Build of A DIY Four Lens Turret

By James R. Kyle

In the beginning = There was Darkness Upon the Earth. (Even God could not see the wonderful job he did).... So He made LIGHT. Then He separated the Darkness from the LIGHT. Meany Billions of years later, a Frenchman named, Joseph Nicéphore Niépce in 1826 or 1827, Made the first Photographic Image - that is still with us today.

Being an "Experimenter" ( I will experiment with ANYTHING ) – I made a decision to build a "Four Selective Lens Turret" for the Burke & James 5X7 Inch View Camera. This [PDF] is how I accomplished this task.

As all of my "builds" I do not have any true 'plans' to show - So - This [PDF] can be the plans for anyone who might choose to do something on the order of what I did. AND TOO, Please feel free to make your own modifications to any and all of my 'Plans" herein.

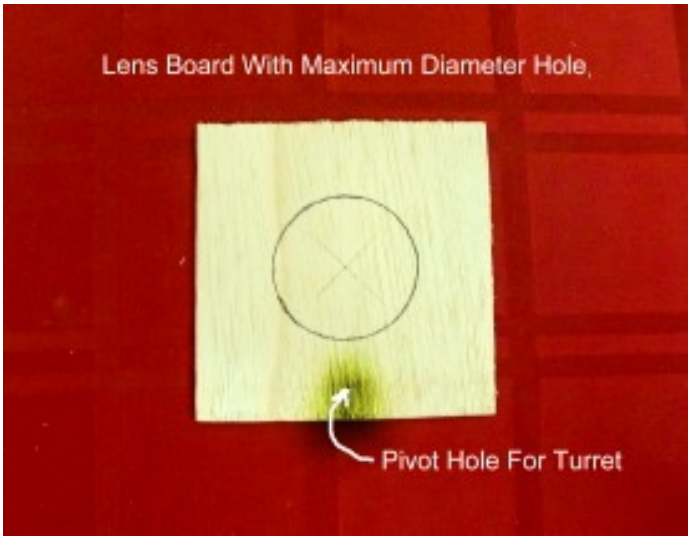
First things FIRST -

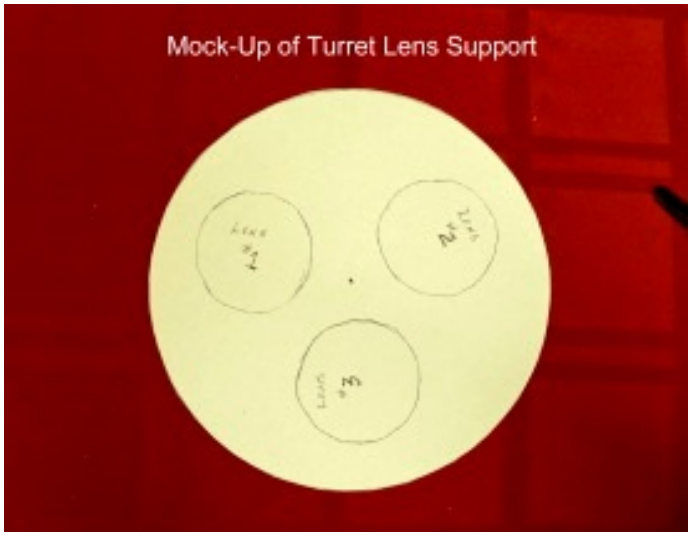
Because of the close tolerances of the build, care must be given to the exact location as well as the size of the lens holes to be cut into the rotating turret. Select each lens and as to their weight for best balance. The size of the "lens board" MUST fit exactly into the frame of the camera selected. (With this build, I used a 1948 Burke & James "Watson" 5X7 inch camera. I will not give size dimensions for this build as usually all lens boards are a bit different. SO - The builder must work with what they have for their selected camera for their project. Remember to ***"Measure TWICE = Cut ONCE"***.

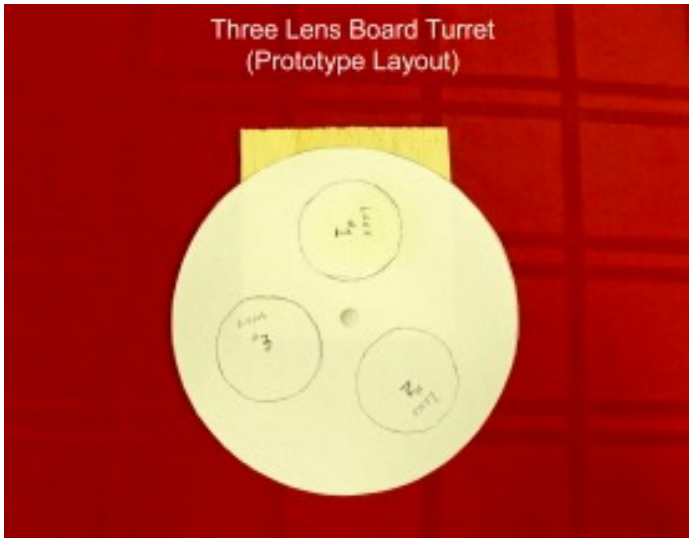
Materials -

This is another choice that each builder must make to their liking. Hard woods are the best. I, however, just used "stuff" laying around the workshop with nothing else to do, in my garage. Being that this only what can be termed a *"Concept Build"* it would never go into production. (Much like you see at the "Auto Show" of the *"concept cars".*) The lens board, I already had that fit the camera, I needed to think out the attachment of the "Rotating Turret, in order to operate in a proper manner, as there was little room. It seems, as it turned out, that I had enough room to cut four (4) 2" holes for the various lenses. I did not have a total of four, only two of that size, the other holes would be one and a quarter inch (1 1/4") - and the other only 1 inch for the other.

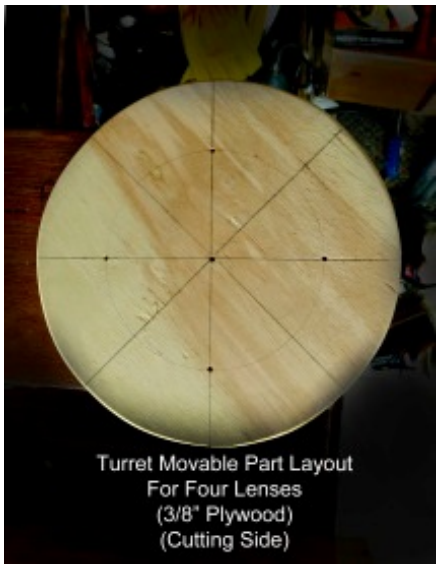
Shown on the next page, is my "Brainstorming" ideas and paper templet - (Remember = Measure Twice, and Cut Once).




With the paper templet as a guide I cut a section of ½" plywood that fit - (in this case it was 8 inches. So I cut a 8.5"X8.5" square. From this I cut a 8.5" circle that would be the movable turret, Lens Support. ((*I originally thought to only use three lenses - However - I now saw that I could indeed use four on this mounting.*))

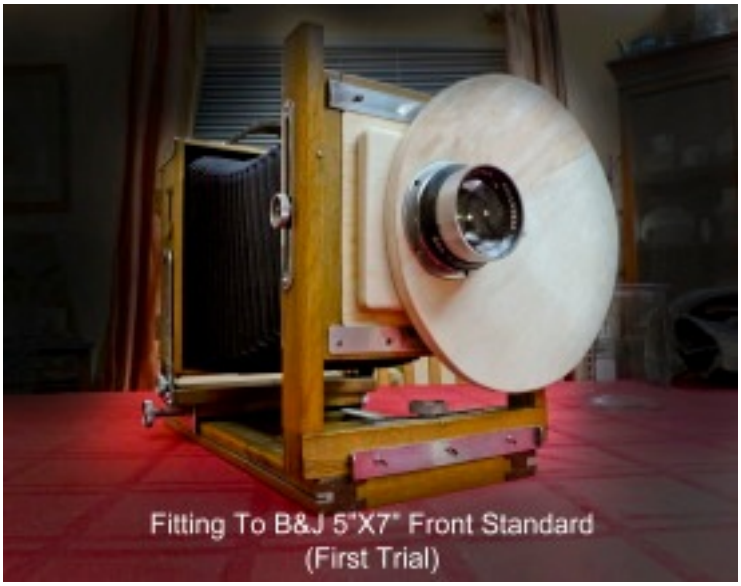


I cut the first two inch hole for a reference point as to place this over the two inch hole of the lens board. That way I have another reference point for the center of the Pivot Point to rotate the turret to each of the four lenses.

The Two Major Parts
The Turret and the Lensboard

Checking the Movement
Between the Lensboard
and Turret

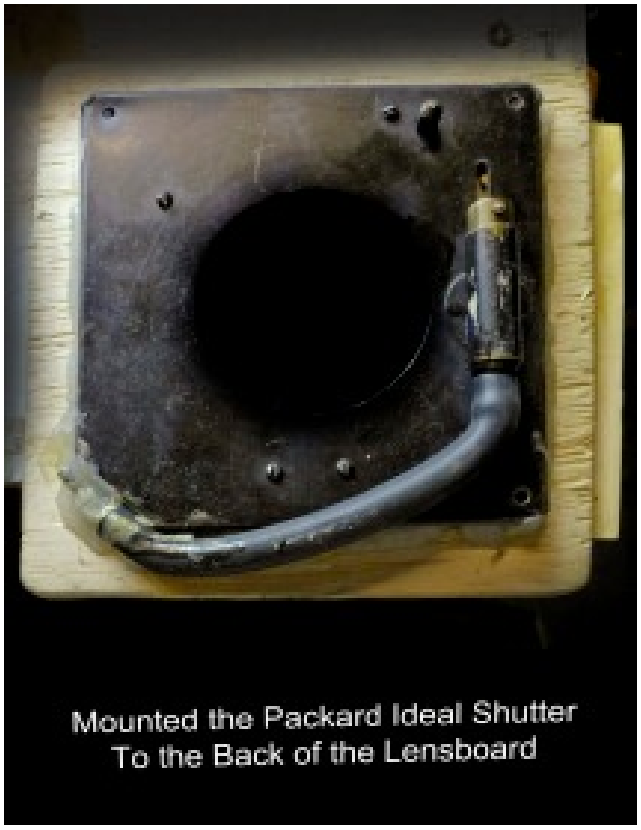
Checking Fit For Alignment
of Lensboard and Lens on Turret



Fitting To B&J 5"X7" Front Standard
(First Trial)

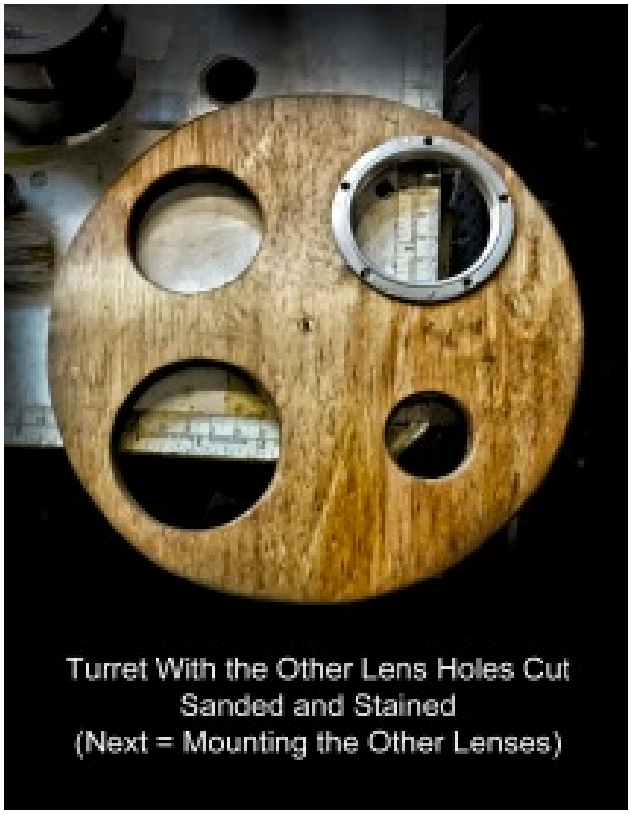
I always check and recheck the fitting of all the parts that go together - especially those in mating or close contact with each other. At this point I could clearly get the "idea" from the inside of my head, into a tangible object that I could see ahead in my mind's eye.

Ready to Stain



Mounted the Packard Ideal Shutter
To the Back of the Lensboard

Next I cut the remaining holes to support the other lenses I selected. Then, I mounted the Packard "Ideal" shutter to the rear of the lens board that would be Inside the camera. (*This is attached to the front standard of the front up-rights that would be adjusted for "Tilts and Swings". However with the size of this turret, these options would not be available with this particular design*.)



Turret With the Other Lens Holes Cut
Sanded and Stained
(Next = Mounting the Other Lenses)

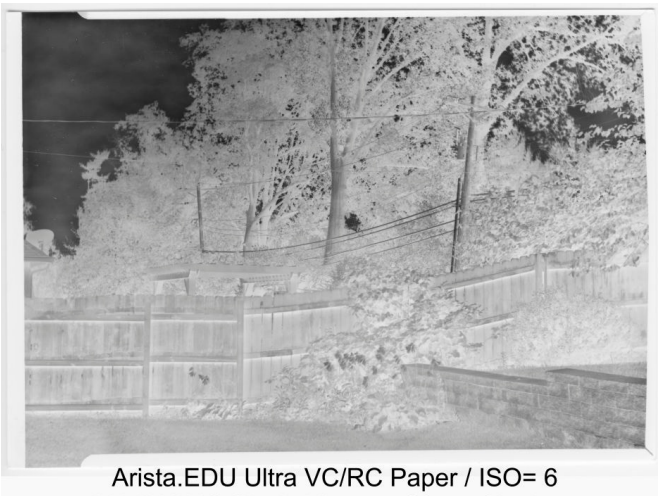
Left Oblique View

B
A
C
D
A= JK-DIY Lens - Objective Lens From a Set of Binoculars - Fitted into A PVC Drain Pipe / With "Waterhouse" f-Stops
B= 1875 Brass Rectilinear Lens / "Waterhouse" f-Stops
C= Wollensak "Raptar" 190mm f-4.5 Lens
D= Wollensak 1900 Lens (???) (broken shutter)

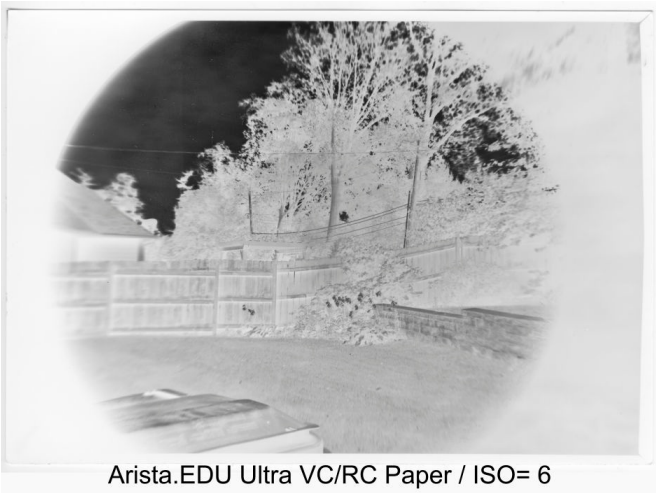
After the epoxy cured, the next step was to fasten the turret to the lens board. I used "sticky-felt" for a gasket as not to have light inter from the sides of the opening where the turret meets with the lens. Then with a #8-24 T.P.I. machine screw and a lock nut, made the two parts a working single unit.

Now comes the Lens Tests.....

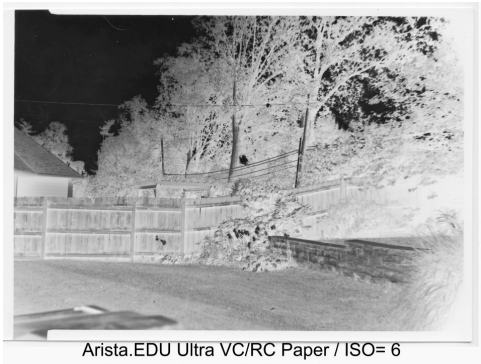
Here are the results of the test.  I of course used photographic paper as a “film base” with these tests.  Each lens is written on the Negatives - with the positives.



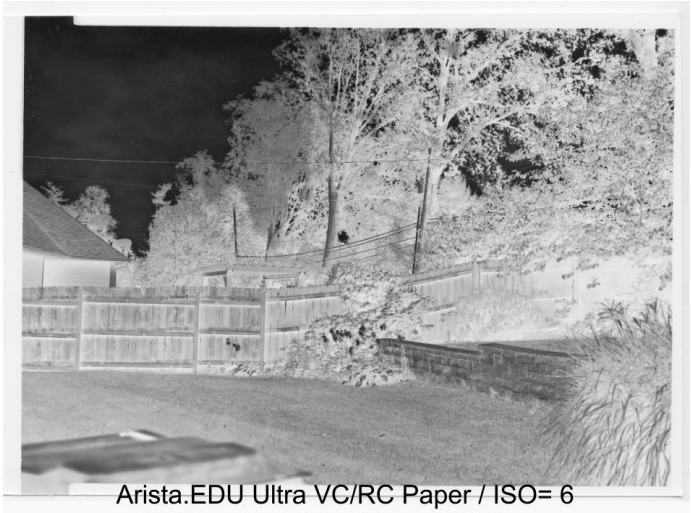
Arista.EDU Ultra VC/RC Paper / ISO= 6
JK-DIY PVC Single Element ??mm f4.5 Lens
f-18 @ 1.5 Sec. No Filter
Dev. Ansco-120 / Reg. Stop & Fixer



Arista.EDU Ultra VC/RC Paper / ISO= 6
1875 Brass Rectilinear 90mm f5.6 Lens
f-5.6 @ 1/2 Sec. No Filter
Dev. Ansco-120 / Reg. Stop & Fixer



Arista.EDU Ultra VC/RC Paper / ISO= 6
Wollensak “Raptar” 190mm f4.5 Lens
f-16 @ 1 Sec. No Filter
Dev. Ansco-120 / Reg. Stop & Fixer



Arista.EDU Ultra VC/RC Paper / ISO= 6
Wollensak 1900? 180mm f5.6 Lens
f-16 @ 1 Sec. No Filter
Dev. Ansco-120 / Reg. Stop & Fixer

After these test - I think that I will change two of the lenses. One, for obvious reasons, the vegetating of the Second Lens used – it is better suited for a 4X5 Camera. The other (number four (4)) as it is too close to the same focal length of the Third lens.

Anywhat.....

Here is what I did for this build. You can use it as a guide for your turret design on a camera, and lenses of your choice.

James R. Kyle, Photographer & Experimenter
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